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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,462	01/23/2002	Jin-Tae Kim	12109.66US01	4118
23552	7590	04/28/2005	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			PANWALKAR, VINEETA S	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No. ☒

10/056,462

Applicant(s)

KIM ET AL.

Examiner

Vineeta S. Panwalkar

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-15 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/24/2002  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Drawings are objected to as to minor informalities.
  - In claims 3 and 9, a data discriminating unit for synchronizing with symbol timing information restored in the symbol timing restoration unit according to the channel selected in the channel selection unit and thereafter discriminating multiple channel signal from the receiving data by sampling the equalization unit is claimed. Therefore, in Fig.2, the implied connection between the data discriminating unit and the symbol timing restoration unit should be shown.

### ***Claim Objections***

2. Claims 1, 3 and 9 are objected to because of the following informalities:
  - Claims 1 and 9 comprise a mixing unit for mixing signals of the multiple channel modulated by the modulation units and outputting the resultant signal to a digital/analog conversion unit. The term "a digital/analog conversion unit" should be changed to "the digital/analog conversion unit", since the pre-amble of both claims also mention and "a digital/analog conversion unit".

- Claims 3 and 9 comprise a band pass filtering unit for filtering a multiple channel signal received through the power line, amplified by an analog amplifying unit and then converted into a digital signal by an analog/digital conversion unit to a predetermined band. The terms "an analog amplifying unit" and "an analog/digital conversion unit" should be changed to "the analog amplifying unit" and "the analog/digital conversion unit" respectively, since the pre-amble of both claims also mention "an analog amplifying unit" and "an analog/digital conversion unit".

***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Skeba et al (US 6687261), hereafter referred to as Skeba.

Skeba discloses a multiple channel system comprising:

- A digital/analog conversion unit and a multiple channel frequency shift keying (FSK) modulating apparatus comprising (Column 5, lines 26-28):
- A plurality of modulation units for modulating transmission data of the multiple channel into predetermined frequencies; and a mixing unit for mixing signals of the multiple channel modulated by the modulation units and outputting the resultant signal to the digital/analog conversion unit (Column 5, lines 30-35, where the summer is the mixing unit).

The preamble has not been given patentable weight, as it does not breathe life into the claim.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Skeba in view of Sutton et al. (US 5412687), hereafter referred to as Sutton.

Skeba discloses all the subject matter claimed (see above), except the specifics about the type of FSK modulation scheme used.

In the same filed of endeavor, however, Sutton discloses a digital communications equipment wherein:

- The plural modulation units are constructed as a 4-ary frequency shift keying (FSK) modulation unit. (Column 2, lines 60-68).

Thus, it would be obvious to a person of ordinary skill in the art to combine the two references, as Sutton's teachings suggest that implementing a 4-ary modulation scheme in a communications system has the advantage of low cost, miniaturization, low power consumption and high spectral efficiency (Column 2, line 68 and Column 3, lines 1-2).

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 9 recite the received signal being amplified and analog/digital converted. However, from the claim language, it appears that all processing is done in analog, without any indication of digital signal processing. Thus the positions of the analog amplifier and analog/digital converter are unclear from the claim language.

***Allowable Subject Matter***

7. Claims 3 and 9 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
8. Claims 4-8 and 10-15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Other Prior Art Cited***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  - Abraham (US 6396392) discloses high frequency network communications over various lines.

***Contact Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vineeta S. Panwalkar whose telephone number is 571-272-8561. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

V.P.

  
**MOHAMMED GHAYOUR**  
**SUPERVISORY PATENT EXAMINER**